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## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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<b>(21) International Application Number:</b> PCT/EP98/00154 <b>(22) International Filing Date:</b> 12 January 1998 (12.01.98) <b>(30) Priority Data:</b> 08/791,127 30 January 1997 (30.01.97) US <b>(71) Applicant (for AU BB CA GB GH GM IE IL KE LC LK LS MN MW NZ SD SG SL SZ TT UG ZW only):</b> UNILEVER PLC [GB/GB]; Unilever House, Blackfriars, London EC4P 4BQ (GB). <b>(71) Applicant (for all designated States except AU BB CA GB GH GM IE IL KE LC LK LS MN MW NZ SD SG SL SZ TT UG ZW):</b> UNILEVER N.V. [NL/NL]; Weena 455, NL-3013 AL Rotterdam (NL). <b>(72) Inventors:</b> PUVVADA, Sudhakar; Apartment 5A, 130 Orient Way, Rutherford, NJ 07070 (US). SHANA'A, May; 200 Old Palisade Road, Fort Lee, NJ 07024 (US). <b>(74) Agent:</b> MOLE, Peter, Geoffrey; Unilever plc, Patent Division, Colworth House, Sharnbrook, Bedford MK44 1LQ (GB).		<b>(81) Designated States:</b> AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>
<b>(54) Title:</b> CLEANSING COMPOSITION WITH SEPARATELY DISPENSED CLEANSING BASE AND BENEFIT BASE WHEREIN BENEFIT BASE ALSO COMPRISES SURFACTANT		
<b>(57) Abstract</b>  An aqueous liquid cleansing and moisturizing composition comprising a base formulation and an additive formulation in which the base formulation and additive formulation are separate but combinedly dispensable from a single packaging means in a predetermined ratio as discrete domains. By adding some surfactant to additive formulation stripe, enhanced lather is obtained. Further, some surfactant is assured, even if there is uneven pumping. Finally, greater consumer control of surfactant of moisturizer levels is afforded.		

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CLEANSING COMPOSITION WITH SEPARATELY DISPENSED  
CLEANSING BASE AND BENEFIT BASE WHEREIN BENEFIT BASE  
ALSO COMPRISES SURFACTANT

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FIELD OF THE INVENTION

The present invention relates to detergent compositions suitable for topical application for cleansing and improving the condition of the human body, particularly for moisturizing the skin, hair, nails and other epithelial tissues, including the mucosae. In particular, it relates to compositions which are formulated both to give mild cleansing and to condition the skin.

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BACKGROUND OF THE INVENTION

Compositions which both provide a cleansing function and a moisturizing benefit are known. For example, WO 90/13283 discloses compositions comprising acyl ester of an isethionic acid salt, a long chain fatty acid, a moisturizer component and optional soap.

One problem which had been previously encountered with such dual purpose compositions is that they contain an insufficient level of moisturizer component; or an insufficient amount deposits on use.

Another problem associated with such dual cleansing and moisturizing compositions is instability. According to WO 94/03152, concerned with shower gels comprising a non-soap detergent, silicone oil and cationic polymers, the maximum average droplet size of the silicone oil that can be used is 2 microns, if product stability is to be maintained.

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surfactant. Finally, by adding surfactant to the benefit agent stripe, the present invention allows the user a greater degree of control over exactly how much cleansing they want (i.e., the benefit agent cleanser having more moisturizer and less cleanser than the primary surfactant-containing stripe).

#### BRIEF SUMMARY OF THE INVENTION

Suddenly and unexpectedly, applicants have found that, by adding some surfactant to the benefit agent stripes, they can (1) enhance total lather; (2) significantly ameliorate problems associated with inadvertent, uneven striping; and (3) add control to the user as to how much or how little cleanser is dispensed.

More specifically, the present invention comprises an aqueous liquid cleansing and moisturizing composition comprising:

- (a) 10 to 99.9% by wt., preferably 30 to 70% by wt. total product of a base formulation comprising 1% to 35% by wt. of base formulation of a surface active agent selected from the group consisting of anionic, nonionic, amphoteric/zwitterionic and cationic surfactants and mixtures thereof; and balance water and other optional ingredients (e.g., cationic polymers, perfumes, thickeners, opacifiers, etc.); and
- (b) 0.1% to 90% by wt., preferably 30% to 70% by wt. total product of an additive formulation comprising:
  - (i) 1% to 80% by wt., preferably 5% to 60% by wt. of the additive composition (i.e., "benefit-containing" formulation) comprising benefit agent;

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wherein the additive formulation stripe and base formulation stripe are physically separate but combinedly dispensable from a single packaging means in a predetermined ratio as discrete domains, the domains having one dimension of at least about 1000 microns.

One advantage of the present invention is that it leads to improved lather. While not wishing to be bound by theory, this is believed to be due to lathering effect of surfactant in the additive stripe. A second advantage is the ability to allow the user to obtain cleanser/surfactant from either pump, even if the consumer inadvertently (or purposely) pushed only one side of the pump. Finally, by allowing the consumer to select from two different concentrations of cleanser, the consumer is in much greater control of exactly how much cleanser they wish to use.

The base formulation and additive formulation (comprising benefit agent) are dispensable from a single packaging means in a predetermined ratio according to the use for which composition is intended. An advantage of dispensing the base formulation stripe and additive stripe (containing benefit agent) in combination is that it avoids the inconvenience of having to post mix the two components. This is particularly advantageous when the separate components of a composition need to be mixed in precise ratios in order to achieve the desired effect.

The discrete domains of the composition of the invention may be considered as separate stripes of base formulation and of additive formulation.

The composition is suitable for cleansing and "moisturizing", "conditioning" or "protection" of the skin.

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- myristate, isopropyl palmitate, isopropyl adipate, butyl stearate, decyl oleate, cholesterol isostearate, glycerol monostearate, glycerol distearate, glycerol tristearate, alkyl lactate (for example lauryl lactate), alkyl citrate and alkyl tartrate;
- (i) essential oils such as fish oils, mentha, jasmine, camphor, white cedar, bitter orange peel, ryu, turpentine, cinnamon, bergamont, citrus unshiu, calamus, pine, lavender, bay, clove, hiba, eucalyptus, lemon, starflower, thyme, peppermint, rose, sage, menthol, cineole, eugenol, citral, citronelle, borneol, linalool, geraniol, evening primrose, camphor, thymol, spirantol, pinene, limonene and terpenoid oils;
- (j) lipids such as cholesterol, ceramides, sucrose esters and pseudo-ceramides as described in European Patent Specification No. 556,957;
- (k) vitamins such as vitamin A and E, and vitamin alkyl esters, including those vitamin C alkyl esters;
- (l) sunscreens such as octyl methoxyl cinnamate (Parsol MCX) and butyl methoxy benzoylmethane (Parsol 1789);
- (m) phospholipids;
- (n) humectants such as glycerin, propylene glycol and sorbitol; and
- (o) mixtures of any of the foregoing components.

Where adverse interactions between the benefit agent and surface active are likely to be particularly acute, the benefit agent may be incorporated in the compositions of the invention in a carrier.

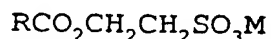
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The benefit agent preferably comprises 1 to 80% additive formulation stripe, preferably 5 to 60% of the additive composition.

- 5 As seen in the examples, use of surfactant allows greatly improved lathering of the entire composition.

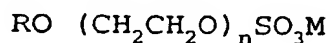
The surface active agent used in the additive stripe can be selected from any known surfactant suitable for  
10 topical application to the human body. Mild surfactants, i.e., surfactants which do not damage the stratum corneum, the outer layer of skin, are particularly preferred.

One preferred anionic detergent is fatty acyl  
15 isethionate of formula:



where R is an alkyl or alkenyl group of 7 to 21 carbon atoms and M is a solubilizing cation such as sodium,  
20 potassium, ammonium or substituted ammonium. Preferably at least three quarters of the RCO groups have 12 to 18 carbon atoms and may be derived from coconut, palm or a coconut/palm blend.

25 Another preferred anionic detergent is alkyl ether sulphate of formula:



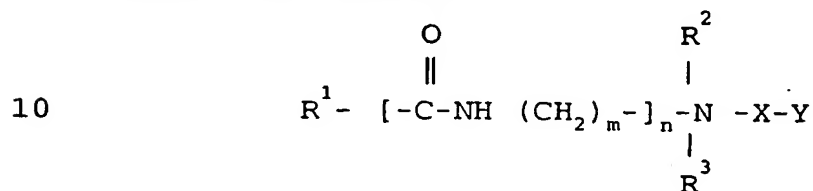
where R is an alkyl group of 8 to 22 carbon atoms, n  
30 ranges from 0.5 to 10 especially from 1.5 to 8, and M is a solubilizing cation as before.

Other possible anionic detergents include alkyl glyceryl ether sulphate, sulphosuccinates, taurates,

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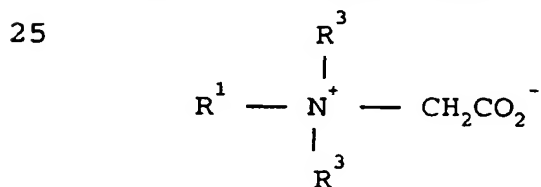
substantially saturated carbon chain and, preferably, is a potassium soap with a C<sub>12</sub> to C<sub>18</sub> carbon chain.

Suitable surfactants which may be used also include  
 5 zwitterionic detergents which have an alkyl or alkenyl group of 7 to 18 carbon atoms and comply with an overall structural formula:

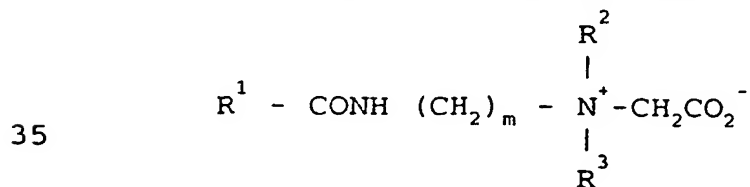


where R<sup>1</sup> is alkyl or alkenyl of 7 to 18 carbon atoms R<sup>2</sup>  
 15 and R<sup>3</sup> are each independently alkyl, hydroxyalkyl or carboxyalkyl of 1 to 3 carbon atoms;  
 m is 2 to 4;  
 n is 0 or 1;  
 X is alkylene of 1 to 3 carbon atoms optionally  
 20 substituted with hydroxyl; and  
 Y is -CO<sub>2</sub> or SO<sub>3</sub>.

Zwitterionic detergents within the above general formula include simple betaines of formula:



and amido betaines of formula:





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The surface active agent is preferably present at a level of from 0.1 to 20 wt.%, preferably 5 to 20 wt% of the additive stripe formulation.

5       Thickeners may also be added to the additive stripe formulation in order to achieve the required viscosity during use. Preferred thickeners for the benefit agent include fumed silica; polyethylene; alkyl silicone wax; aluminum silicate; lanosterol; natural and synthetic waxes; 10 fatty acids and derivatives thereof, in particular, fatty acid monoglyceride polyglycol ethers; higher fatty alcohols; petrolatum; narogel; polyammonium stearate; hydrotalcites; and mixtures thereof.

15       Some materials may function as both a benefit agent and a thickener. For example, it will be understood that where the composition comprises two or more benefit agents, one of said benefit agents may also function as a thickening agent.

20       Further examples of structurants and thickeners are given in the International Cosmetic Ingredient Dictionary, Fifth Edition, 1993, published by CTFA (The Cosmetic, Toiletry & Fragrance Association), incorporated herein by reference.

25       The balance of additive stripe will comprise water and optionals such as perfumes, opacifiers, cationic polymers etc.

30                               BASE FORMULATION STRIPE

      The "base" formulation stripe may include any of the surfactants (or mixture of surfactants) described for use in the "additive" stripe formulation discussed above.

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It is an essential feature of the invention that the additive formulation and base formulation are physically separate but combinedly dispensable from a packaging means and typically a single packaging means. Such a packaging means includes those systems which comprise two separate compartments. Ensuring that the base formulation and additive formulation are separate can be achieved in a variety of ways: Packaging of the composition such that the base formulation and additive formulation are present in separate compartments or in separate domains within the packaging; including encapsulation of the additive formulation; and by processing of the composition by coextrusion to produce a striped product in which individual stripes contain either the base formulation or additive formulation.

Compositions of the invention may be formulated as products for washing the skin, for example, bath or shower gels, hand washing compositions or facial washing liquids; pre- and post-shaving products; rinse-off, wipe-off and leave-on skin care products; products for washing the hair and for dental use.

The compositions of the invention will generally be pourable liquids or semi-liquids e.g., pastes and will have a viscosity in the range 250 to 100,000 mPas measured at a shear rate  $10\text{s}^{-1}$  and  $25^{\circ}\text{C}$ , in a Haake Rotoviscometer RV20.

When the product is formulated as a shower gel, the viscosity will generally be in the range 800 to 30,000 mPas measured at a shear rate  $10\text{s}^{-1}$  and  $25^{\circ}\text{C}$ .

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Surfactant Stripe

<u>Table I</u>	
<u>Ingredients</u>	<u>% by wt.</u>
Amphoteric (e.g., cocoamidopropyl betaine)	15-20%
Anionic surfactant (e.g., sodium laureth sulfate)	10-15%
Humectants (e.g., glycerin)	1-3%
Cationic polymers (e.g., polyquaternium)	0.1-1.0%
Nonionic (e.g., PEG 80 Sorbiton monolaurate)	1-3%
Sodium Hydroxide	0.11
Opacifier (e.g., styrene acrylate)	0.4
Preservative (e.g., DMDM hydantoin)	0.2
Fragrance	1.0
Water	to 100.0

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Table III			
<u>Surfactant Stripe (grams)</u>	<u>Benefit Stripe (grams)</u>	<u>Foam Volumes (ml)</u>	
		<u>Benefit Stripe with surfactants Example I</u>	<u>Benefit Stripe w/o surfactants Comparative</u>
0	4	105.5	10
0.4	3.6	101	18
1.2	2.8	94	23
2.0	2.0	99	58
2.8	1.2	96	93
3.6	0.4	88	89
4	0	128	128

As can be clearly seen from Table III above, when surfactant is used in the benefit stripe (Example I), there is much greater consistency in the amount of lather delivered no matter how the stripes are dispensed. By contrast, when no surfactant is present (Comparative), foaming is high only when more of this surfactant stripe is dispensed. Inadvertently dispensing of greater amounts of benefit stripe clearly results in poor lathering. Even at 50-50 distribution, lather is much higher when surfactant is based in benefit stripe (99 ml) than if there were no surfactant in benefit stripe (58 ml).

#### Example 2

In this example, applicants used the same surfactant stripe as in Example 1 and benefit stripe used slightly different composition as set forth in Table IV below.

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<u>Table V</u>			
<u>Surfactant Stripe (grams)</u>	<u>Benefit Stripe (grams)</u>	<u>Foam Volumes (ml)</u>	
		<u>Benefit Stripe with surfactants (Example 2)</u>	<u>Benefit Stripe w/o surfactants (Comparative)</u>
0	4	142	0
0.4	3.6	166	72
1.2	2.8	179	131
2.0	2.0	176	146
2.8	1.2	174	158
3.6	0.4	152	172
4	0	169	169

Again, results clearly demonstrate that lather volume is far more consistent, no matter how the stripes are dispensed (e.g., even at 0 grams surfactant stripe and 4 grams benefit agent stripe) when the benefit agent stripe contains surfactant.

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3. A composition as claimed in either claim 1 or claim 2, wherein optionals of base formulation are cationic polymers, perfumes, thickeners or opacifiers.

5 4. A composition as claimed in any preceding claim, wherein component (b) is 30 to 70% total product.

5. A composition as claimed in any preceding claim, wherein benefit agent is 5 to 60% of additive composition.

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6. A composition as claimed in any preceding claim, wherein surfactant is 5 to 20% of additive formulation.

15 7. A composition as claimed in any preceding claim, wherein optionals of additive formulation are cationic polymer, thickeners, perfumes or opacifiers.

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 98/00154

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CHEMICAL ABSTRACTS, vol. 106, no. 16, 20 April 1987 Columbus, Ohio, US; abstract no. 125705, MAEKAWA AKIO, SUGIHARA TETSUYA: "multiphase gel preparations for hair conditioning" XP002069853 see abstract	1-4,6,7
X	& JP 61 215 310 A (SUNSTAR) 25 September 1986 -----	1-4,6,7